A Prospective Study of Intestinal Stomas

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Abstract

Background and Objectives: Intestinal stomas are commonly constructed in an emergency as well as elective setting for a variety of indications. Historically associated with a high morbidity, evolution of skills on the part of the surgeon has lead to better understanding of the indications, complications and management of a stoma. This study aims to evaluate the above mentioned parameters and hence improve the outcome of patients undergoing a stoma. **Method** 50 patients admitted in MMIMSR, Mullana (Ambala) and later operated and managed with a stoma were closely followed up from the date of admission to the date of discharge and the various parameters were studied. **Results** The indications, technique, complications and its management were studied in detail by following patients in person or through phone and the results were analyzed in detail. **Interpretation and Conclusion** Construction and management of stoma was associated with a few complications. Most patients however tolerated the procedure well and the overall compliance was satisfactory. Loop ileostomy was the commonly constructed stoma and the one associated with most complications. Transverse loop colostomy was associated with no complications and was extremely well tolerated.

Key Words: *Intestinal stoma, complications, end colostomy, loop ileostomy, loop colostomy, Parastomal hernia, stomal prolapse, loop-end ileostomy.*

Introduction

Stoma was introduced in surgical practice more than 200 years ago as a simple and safe procedure[1]. Littre of Paris, made the first colostomy in baby with imperforate anus, in 1710. The mortality rate of 60% with primary repair of colonic injuries, in World War I, dropped down to 30%, with introduction of colostomy in World War II. Though ileostomy was first performed in 1912, it was widely accepted only after Brooke's modification in 1952. Stomas can be made on a temporary or a permanent basis and can be constructed surgically on an emergency or elective basis. The various surgically constructed forms of stomas include gastrostomy, ileostomy and a colostomy. The procedures like ileostomy or colostomy is necessitated in many patients attending tertiary care hospital.

Materials and Method

The present study entitled "A Prospective Study Of Intestinal Stomas" carried out in the Department of Surgery at Maharishi Markandeshwar Institute of Medical Sciences and Research, Mullana, Ambala from December 2017 to July 2019. After submission and clearance of the synopsis from the Institutional Ethical Committee, MMIMSR, MMU, Mullana, a total of 50 patients admitted in department of surgery, MMIMSR, Mullana, Ambala, who underwent surgical procedure and had resultant stoma (ileostomy/colostomy) were carefully selected by applying specific inclusion and exclusion criteria.

Inclusion criteria

All patients 18 years and above in whom ileostomy/ colostomy has been made, whether in emergency or elective surgery.

Exclusion criteria

- Patients less than 18 years of age.
- Patient not fit for surgery
- Patient with bleeding disorders
- Patient with pregnancy

· Patient with immunocompromised state

The demographic profile of each selected patient as per prescribed Performa.

Clinical assessment of each selected patient was carefully done as per the prescribed Performa

Investigations

All selected patients were then subjected to baseline hematological, biochemical and radiological evaluation at the time of admission.

Preoperative evaluation and anesthesia

All selected patients were then explained regarding the need for surgery and a fully explained, well informed, written consent was taken from them, regarding the procedure.

All patients received preoperative antimicrobial prophylaxis before surgery. The antibiotic given was injection ceftriaxone 1000 mg, injection amikacin 500 mg, injection metronidazole 500 mg.

All operations were performed in supine position under general anesthesia.

Procedure and intra operative assessment

For hollow viscus perforations, laparotomy was done, perforation was closed, through wash was given with normal saline and loop ileostomy was constructed.

Post-operative assessment

Post-operative management consisted of standard nursing care and analgesia.

Dressing was removed in the morning. From day 7 to day 10 notes was made of any wound infection, wound dehiscence and burst abdomen.

Compliance was graded as good, average and poor based on patient's acceptance of the procedure.

Results

Table 1 :Nature of presentation among patients undergoing stoma formation

Nature of presentation	Frequency	Percentage	X^2	P Value
Emergency	29	58%	1.28	**0.25**
Elective	21	42%		
Total	**50**	**100%**		

Table 2: Anatomical type of stoma among patients undergoing procedure

Type of stoma	Frequency	Percentage	X2	P value
Loop Ileostomy	28	56.0	60.8	0.0001
Transverse Loop Colostomy	10	20.0		
End Ileostomy	6	12.0		
End Colostomy	4	8.0		
Loop Colostomy (Sigmoid)	2	4.0		
Total	50	100.0		

Table 3: Nature of stoma among patients undergoing stoma formation

Nature of stoma	Frequency	Percentage	X2	P value
Temporary	46	92%	15.48	0.0001
Permanent	4	8%		
Total	50	100%		

Table 4: Complications among patients undergoing stoma formation

Complications	Frequency	Percentage	X^2	P value
Nil	38	76	128.80	**0.0001**
Local sepsis	5	10		
Necrosis	3	6		
Hernia	2	4		
Prolapse	1	2		
Retraction	1	2		
Total	**50**	**100**		

Table 5 :Complications of stoma with respect to nature of stoma

Complication	Elective	Emergency	X2	P value
Nil	6(12%)	32(64%)	15.7	0.008
Hernia	2(4%)	0		
Local sepsis	0	5(10%)		
Necrosis	0	3(6%)		
Prolapse	1(2%)	0		
Retraction	0	1(2%)		
Total	9(18%)	41(82%)		

Table 6: Type of stoma versus compliance

Patient compliance	Good	Average	poor	X^2	P value
End Colostomy	3(6%)	1 (2%)	0	5.270	0.728
End Ileostomy	2(4%)	2 (4%)	1 (2%)		
Loop Colostomy(Sigmoid)	2(4%)	0	0		
Loop Ileostomy	20(40%)	4(8%)	4 (8%		
Transverse Loop Colostomy	10 (20%)	0	0		

Discussion

The findings can be discussed as follows :

I: Indications for surgery In the present study, 17 patients (34%) had stoma constructed for hollow viscus perforation (jejunum, ileum, colon). 8 patients (16%) undergoing stoma formation had intestinal obstruction for malignant conditions while 7 patients (14%). 2 patients (4%) each had blunt abdominal trauma, diverticular disease, inflammatory bowel disease, peri-anal sepsis, and acute mesenteric ischemia as cause for stoma formation.(X^2 = 41.200, p value = 0.0001).

Ahmad Z et al[46], in his study of 85 patients, in 2009, found that 38% patients requiring stoma formation had enteric perforation, which is comparable to the present study. **Chaudhary P et al[60]**, in his study of 630 patients, in 2013 reported a further higher incidence of enteric perforation requiring stoma formation in the range of 63.8%. However, **Ahmad Z et al[46]** and **HussainS et al[61],** in his study of 100 patients and 106 patients respectively, in 2009 and 2013 respectively, reported a lower incidence of enteric perforation in the range of 12.9% and 25.4% respectively.

2 : Nature of the disease

	Benign	**Malignant**
Keerthana DD et al (2019)	24.1%	75.90%
Roshini AP et al (2017)	67.5%	32.5%
Gujar N et al (2016)	43.4%	46.6%
Sumathi P et al (2015)	52.0%	48.0%
Engida A et al (2014)	89.0%	21.0%
Ahmad Z et al (2012)	83.0%	13.0%
ReRedha AG et al (2002)	62.5%	37.5%
Present Study	78.0%	22.0%

In the present study,39 patients (78%) had benign cause where as 11 patients (22%) had malignant cause. In all malignant conditions colostomy was performed i.e 11 patients (22%). Among benign conditions, 31 patients (62%) had ileostomy and 7 patients (14%) had colostomy. The ratio of benign to malignant cause among patients undergoing stoma formation was 3.54:1

1:Nature of stoma

	Temporary	**Permanent**
MessangaA et al. (2017)	94.0%	6.0%
Roshini AP et al. (2017)	57.5%	42.5%
Hussain S et al. (2013)	66.0%	34.0%
Present Study	92.0%	8.0%

In the present study, 46 patients (92%) underwent a stoma construction for temporary period which was closed accordingly, in the range of 3-6 months. Only 4 patients (8%) underwent permanent stoma construction. (x2 =15.48, p value = 0.0001)

3 : Complications of stoma

	Local sepsis	**Necrosis**	**Hernia**	**Stomal prolapse**	**Stoma lretration**
Messanga A et al. (2017)	16%	2%	2%	42%	7%
Gujar N et al. (2016)	25%	4%	1.6%	7%	4%
Sumathi P et al. (2015)	22%	2%	2%	10%	8%
Kurpad V et al (2015)	25%	5%	2.5%	2.5%	10%
Engida A et al. (2014)	23.3%	4.6%	1.4%	2.7%	5.9%
Pipariya PR et al. (2014)	22%	6%	6%	14%	4%
Present study	10%	6%	4%	2%	2%

In the present study, a total number of 12 patients (24%) had stoma related complications while 38 patients (76%) had no stoma related complications throughout their course of treatment. Maximum number of patients i.e. 5 patients (10%) had local sepsis and excoriation around stoma site, while 3 patients (6%) had stoma necrosis. Two patients (4%)

had parastomal herniation while 1 patient (2%) each had stomal prolapse and stomal retraction.(x^2=128.80, p value =0.0001).

Conclusion

Though stoma formation is life saving, it carries significant number of complications, is associated with decreased quality of life and increased economic health burden.

The common complications associated with stoma formation include local sepsis with excoriation, stomal necrosis, herniation, prolapse and retraction. Stomal necrosis, herniation, prolapse andretraction require stomal revision, while local excoriation demands prevention and conservative management.

Patient's compliance may vary with the nature of complications suffered, its duration and intensity. Patients with no complication may rate the procedure good, even if it is cosmetically unfair, while patients with complication may rate a procedure worse, even if it is lifesaving.

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